

AUTHOR INDEX

- Ajl, Samuel J., 177
Allen, Milton J., 80
Ambrose, Charles T., 408
Artenstein, Malcolm S., 571
August, J. T., 279
- Bartlema, H. C., 633
Bellanti, J. A., 539
Brachman, Philip S., 646
Buescher, E. L., 539
- Campbell, L. Leon, 732
Carlisle, Harold N., 636
Cate, Thomas R., 517
Chappell, W. Adrian, 615
Cirillo, Vincent P., 68
Converse, John L., 678
Couch, Robert B., 517, 576, 586
Crozier, Dan, 542
- Dalldorf, Frederic G., 646
Dangerfield, Harry G., 542
Demchak, Peter, 615
Derrenbacher, Edward B., 576
Dimmick, R. L., 597
Dominik, Joseph W., 615
Douglas, R. Gordon, Jr., 517, 576, 586
Dowling, Harry, F., 485
Dutton, Richard W., 397
- Ehrlich, Richard, 604, 624
Eigelsbach, Henry T., 532
Eisen, Herman N., 383
Ellis, J. J., 795
Erikson, R. L., 267
- Franklin, R. M., 267
Furcolow, Michael L., 694
- Gerone, Peter J., 517, 576, 586
Glassman, Harold N., 657, 696
Gochenour, William S., Jr., 584, 595
Goldstein, Elliot, 488
Gorelick, Arthur N., 644
Gray, Mitchell L., 309
Green, Gareth M., 488
Guilbault, George G., 94
Gusdon, John P., Jr., 418
- Hamilton-Miller, J. M. T., 769
Hanks, John H., 114
Harold, Franklin M., 772
Hatch, M. T., 597
Hayaishi, Osamu, 720
Hearn, Henry J., Jr., 615
Hesseltine, C. W., 795
Hogge, Arthur L., 542
Hornick, Richard B., 532
Housewright, Riley D., 696
- Joklik, Wolfgang K., 33
- Kadis, Solomon, 177
Kass, Edward H., 488
Kaufmann, Arnold F., 646
Keefer, Garrett V., 576
Kilbourne, Edwin D., 530
Killinger, Arden H., 309
Knight, Vernon, 496, 517, 576, 586,
- Langmuir, Alexander D., 672
Lark, Karl G., 3
Legator, Marvin, 471
Leif, Walter R., 602
Leifson, Einar, 257
Lepper, Mark H., 548
Lewis, Kenneth, 101
Lidwell, O. M., 573
Lüderitz, O., 192
- Magis, Josephine M., 624
Matumoto, Minoru, 152
Maxfield, Myles, 557
May, K. R., 559
Miller, William S., 571, 589
Mims, C. A., 739
Montie, Thomas C., 177
Muschel, Louis H., 427
- Neidhardt, Frederick C., 701
- Plagemann, Peter G. W., 288
Postgate, John R., 732
Proctor, Donald F., 498
- Reed, Raymond E., 678
Rylander, Ragnar, 514
- Saslaw, Samuel, 636
Sawyer, William D., 542
Seelig, Mildred S., 442
Shapiro, Lucille, 279
Shotwell, O. L., 795
Starkey, Robert L., 67
Staub, A. M., 192
Stavitsky, Abram B., 418
Steiner, Lisa A., 383
Strasters, K. C., 674
Stubblefield, R. D., 795
Swim, H. Earle, 288
- Weinberg, Eugene D., 136
Westphal, O., 192
Williams, R. E. O., 660
Wilson, Benjamin J., 478
Winkler, K. C., 622, 674
Wogan, Gerald N., 460
- Yamashiroya, Herbert M., 624
- Zentner, Robert J., 551

AUTHOR INDEX

- Ajl, Samuel J., 177
Allen, Milton J., 80
Ambrose, Charles T., 408
Artenstein, Malcolm S., 571
August, J. T., 279
- Bartlema, H. C., 633
Bellanti, J. A., 539
Brachman, Philip S., 646
Buescher, E. L., 539
- Campbell, L. Leon, 732
Carlisle, Harold N., 636
Cate, Thomas R., 517
Chappell, W. Adrian, 615
Cirillo, Vincent P., 68
Converse, John L., 678
Couch, Robert B., 517, 576, 586
Crozier, Dan, 542
- Dalldorf, Frederic G., 646
Dangerfield, Harry G., 542
Demchak, Peter, 615
Derrenbacher, Edward B., 576
Dimmick, R. L., 597
Dominik, Joseph W., 615
Douglas, R. Gordon, Jr., 517, 576, 586
Dowling, Harry, F., 485
Dutton, Richard W., 397
- Ehrlich, Richard, 604, 624
Eigelsbach, Henry T., 532
Eisen, Herman N., 383
Ellis, J. J., 795
Erikson, R. L., 267
- Franklin, R. M., 267
Furcolow, Michael L., 694
- Gerone, Peter J., 517, 576, 586
Glassman, Harold N., 657, 696
Gochenour, William S., Jr., 584, 595
Goldstein, Elliot, 488
Gorelick, Arthur N., 644
Gray, Mitchell L., 309
Green, Gareth M., 488
Guilbault, George G., 94
Gusdon, John P., Jr., 418
- Hamilton-Miller, J. M. T., 769
Hanks, John H., 114
Harold, Franklin M., 772
Hatch, M. T., 597
Hayaishi, Osamu, 720
Hearn, Henry J., Jr., 615
Hesseltine, C. W., 795
Hogge, Arthur L., 542
Hornick, Richard B., 532
Housewright, Riley D., 696
- Joklik, Wolfgang K., 33
- Kadis, Solomon, 177
Kass, Edward H., 488
Kaufmann, Arnold F., 646
Keefer, Garrett V., 576
Kilbourne, Edwin D., 530
Killinger, Arden H., 309
Knight, Vernon, 496, 517, 576, 586,
- Langmuir, Alexander D., 672
Lark, Karl G., 3
Legator, Marvin, 471
Leif, Walter R., 602
Leifson, Einar, 257
Lepper, Mark H., 548
Lewis, Kenneth, 101
Lidwell, O. M., 573
Lüderitz, O., 192
- Magis, Josephine M., 624
Matumoto, Minoru, 152
Maxfield, Myles, 557
May, K. R., 559
Miller, William S., 571, 589
Mims, C. A., 739
Montie, Thomas C., 177
Muschel, Louis H., 427
- Neidhardt, Frederick C., 701
- Plagemann, Peter G. W., 288
Postgate, John R., 732
Proctor, Donald F., 498
- Reed, Raymond E., 678
Rylander, Ragnar, 514
- Saslaw, Samuel, 636
Sawyer, William D., 542
Seelig, Mildred S., 442
Shapiro, Lucille, 279
Shotwell, O. L., 795
Starkey, Robert L., 67
Staub, A. M., 192
Stavitsky, Abram B., 418
Steiner, Lisa A., 383
Strasters, K. C., 674
Stubblefield, R. D., 795
Swim, H. Earle, 288
- Weinberg, Eugene D., 136
Westphal, O., 192
Williams, R. E. O., 660
Wilson, Benjamin J., 478
Winkler, K. C., 622, 674
Wogan, Gerald N., 460
- Yamashiroya, Herbert M., 624
- Zentner, Robert J., 551

SUBJECT INDEX

- actinomycin D, effect on virus replication, 152
actinomycin D, inhibition of antibody synthesis by, 408, 418
acylases, role in microbial economy, 769
adenovirus, respiratory disease from, 517
Aerobacter aerogenes, polyphosphate utilization by, 772
aerosol infection with *Rickettsia rickettsii*, 636
aerosol vaccination with tetanus toxoid, 624
aerosolization, stresses of, 551
aerosols, viral, 576
aflatoxin production, 795
aflatoxins, nature of, 460, 471
agricultural commodities, aflatoxin in, 795
air samplers, 559, 571
airborne infections, 485-696
algae, polyphosphate utilization by, 772
amino acid activating enzymes, role in cellular physiology, 701
amino acid starvation, effect on chromosome replication, 3
anamnesic antibody response, 418
anthrax, industrial inhalation, 647
antibacterial action in respiratory system, 488
antibiotic prophylaxis of tularemia, 542
antibiotics, effect on candidiasis, 442
antibody, labeled, assay for, 383
antibody response, secondary, 408
antibody to *Francisella tularensis*, 539
antigenic structure of *Listeria monocytogenes*, 309
antigens, production in virus-infected cell cultures, 152
antigens of *Enterobacteriaceae*, 192
antiviral compounds, mechanism of action, 33
assay of penicillinacylase, 769

bacteriophage induction by aflatoxins, 471
bioelectrochemistry of microorganisms, 67, 68, 80, 94, 101
blood groups, 427
5-bromodeoxyuridine, action against poxviruses, 33
bronchopneumonia, effect of blood group on, 427

candidiasis, effect of antibiotics on, 442
carcinogenic properties of aflatoxins, 460, 471
chelate-dependent microbes, 114
chloramphenicol, inhibition of antibody synthesis by, 408
chlorpromazine, effect on *Escherichia coli* metabolism, 80
cholinesterase, hydrolysis of thiocholine by, 94
chromosome replication, regulation of, 3
coccidioidomycosis, epidemiology of, 678
corticosteroids, requirement for antibody synthesis, 408
corynebacteria, polyphosphate utilization by, 772
coxsackievirus, respiratory disease from, 517
crystalline oxygenases of pseudomonads, 720
current generation by metabolizing systems, 80

deoxyribonucleic acid of poxviruses, 33
Desulfovibrio, classification of, 732

electrical potential of membranes, 68
electrochemical analysis of enzymatic reactions, 94
electrochemical aspects of metabolism, 80
endotoxin, *Candida albicans*, 442
Enterobacteriaceae, antigens of, 192
enzymatic reactions, electrochemical analysis of, 94
enzymes, amino acid activating, 701
Erysipelothrix insidiosa, differentiation from *Listeria monocytogenes*, 309
Escherichia coli, ionic distribution in, 68

fish, listeric infection in, 309
food products, aflatoxin in, 795
fowl, listeric infection in, 309
fowl, susceptibility to Venezuelan equine encephalitis virus, 589
Francisella tularensis, respiratory antibody to, 539
fuel cells, biochemical, 101
fungi, polyphosphate utilization by, 772
fungi producing aflatoxin, 795

gastrointestinal tract, diseases of, 427
genetic markers, evolutionary implications of, 114
genetic recombination of poxviruses, 33
glucose, effect on chromosome replication, 3
glucose, oxidation of, 94

hemorrhagic fevers, 739
hormones, steroid, inhibition of antibody synthesis by, 408
host-dependent microbes, 114
host-parasite interactions, 136

immune response, in vitro studies of, 383, 397, 408, 418
immunization with live tularemia vaccine, 532
immunochemistry of O and R antigens, 192
impinger, multistage liquid, 559
interferon, effect on virus replication, 152
5-iododeoxyuridine, action against poxviruses, 33
ionic distribution in *Escherichia coli*, 68

L forms of *Listeria monocytogenes*, 309
leukocyte cultures, reaction to homologous cells, 397
Listeria monocytogenes, infections caused by, 309
listeric infections, 309
lung, elimination of bacteria from, 514
lymphoid cells, reaction to homologous tissue, 397

maternal-fetal blood group incompatibility, 427
measles virus, multiplication in cell cultures, 152
mengovirus ribonucleic acid, replication of, 288
metallic ions, role in host-parasite interactions, 136
monocyte-producing properties of *Listeria monocytogenes*, 309

- morphology of *Listeria monocytogenes*, 309
murine toxin of *Pasteurella pestis*, 177
mutants with modified synthetases, 701
mycobacteria, polyphosphate utilization by, 772
myxoviruses, effect of blood group substances on, 427
- nitrogen dioxide, effect on resistance to respiratory infection, 604
nucleic acids, role in anamnestic antibody response, 418
nucleic acids, viral, 267, 279, 288
numerical taxonomy, 257
- O antigens, immunochemistry of, 192
oxygenases, crystalline, of pseudomonads, 720
- Pasteurella pestis*, murine toxin of, 177
Pasteurella tularensis, see *Francisella tularensis*
penicillinacylase, properties of, 769
peroxide, oxidation of, 94
phage conversion of *Salmonella*, 192
phage of *Listeria monocytogenes*, 309
phenethyl alcohol, effect on chromosome replication, 3
phospholipid of poxviruses, 33
pigeons, infection by Venezuelan equine encephalitis virus, 589
plague, effect of blood group substances on, 427
plague murine toxin, synthesis of, 177
poliomyelitis, effect of blood group on, 427
polymerase activities associated with ribonucleic acid viruses, 279
polyphosphates, inorganic, 772
polysaccharides, sugar constituents of, 192
poxviruses, infection cycle of, 33
protein synthesis after amino acid starvation, 3
proteins of poxviruses, 33
pseudomonads, crystalline oxygenases of, 720
purines, oxidation of, 94
- R antigens, immunochemistry of, 192
rashes in virus diseases, 739
relative humidity, effect on airborne bacteria, 597
respiratory antibody to *Francisella tularensis*, 539
respiratory disease agents, air sampling for, 559, 571
respiratory infection, effect of nitrogen dioxide on, 604
respiratory system, antibacterial action in, 488
respiratory tract, upper, effect on airborne disease, 498
rheumatic fever, effect of blood group on, 427
rhinovirus, respiratory disease from, 517
ribonucleic acid, viral, biosynthesis of, 267, 279
Rickettsia rickettsii, aerosol infection with, 636
ricketsial rashes, 739
ruminants, listeric infection in, 309
- salicylate, inhibition of immune response by, 408
Salmonella, antigens of, 192
smallpox, effect of blood group substances on, 427
spheroplast toxin content, effect of analogues on, 177
spores, aflatoxin production in, 795
staphylococcal infection, airborne, 660, 674
succinate, effect on chromosome replication, 3
sulfate-reducing bacteria, classification of, 732
synthetases, modified, mutants with, 701
- taxonomy, conventional, 257
taxonomy, numerical, 257
tetanus toxoid, aerosol vaccination with, 624
tetracycline prophylaxis of tularemia, 542
thiocholine, hydrolysis by cholinesterase, 94
thymine starvation, effect on chromosome replication, 3
toxin, murine, of *Pasteurella pestis*, 177
toxins, aflatoxins, 460, 471
tularemia, antibiotic prophylaxis of, 542
tularemia vaccine, live, 532
- vaccination with tetanus toxoid by aerosol, 624
vaccine, tularemia, 532
Venezuelan equine encephalitis virus, 589
viral aerosols, 576
viral disease, respiratory, 517
viral nucleic acids, replication of, 267, 279, 288
virus, measles, multiplication in cell cultures, 152
virus, Venezuelan equine encephalitis, 589
virus, yellow fever, attenuation of, 615
virus diseases, rashes in, 739
virus-host cell interactions, 136
viruses, myxoviruses, effect of blood group substances on, 427
viruses, poxviruses, infection cycle of, 33
- yeasts, polyphosphate utilization by, 772
yellow fever virus, attenuation of, 615

BACTERIOLOGICAL REVIEWS

VOLUME 30

BALTIMORE, MD.
1966

COPYRIGHT © 1966, AMERICAN SOCIETY FOR MICROBIOLOGY

CONTENTS

No. 1, MARCH

Regulation of Chromosome Replication and Segregation in Bacteria. KARL G. LARK	3
The Poxviruses. WOLFGANG K. JOKLIK	33
Symposium on Bioelectrochemistry of Microorganisms	
Introductory Remarks. ROBERT L. STARKEY	67
I. Membrane Potentials and Permeability. VINCENT P. CIRILLO	68
II. Electrochemical Aspects of Metabolism. MILTON J. ALLEN	80
III. Electrochemical Analysis of Enzymatic Reactions. GEORGE G. GUILBAULT	94
IV. Biochemical Fuel Cells. KENNETH LEWIS	101
Host-Dependent Microbes. JOHN H. HANKS	114
Roles of Metallic Ions in Host-Parasite Interactions. EUGENE D. WEINBERG	136
Multiplication of Measles Virus in Cell Cultures. MINORU MATUMOTO	152
The Murine Toxin of <i>Pasteurella pestis</i> : a Study in Its Development. SOLOMON KADIS, THOMAS C. MONTIE, AND SAMUEL J. AJL	177
Immunochemistry of O and R Antigens of <i>Salmonella</i> and Related <i>Enterobacteriaceae</i> . O. LÜDERITZ, A. M. STAUB, AND O. WESTPHAL	192

No. 2, JUNE

Bacterial Taxonomy: a Critique. EINAR LEIFSON	257
Symposium on Replication of Viral Nucleic Acids	
I. Formation and Properties of a Replicative Intermediate in the Biosynthesis of Viral Ribonucleic Acid. R. L. ERIKSON AND R. M. FRANKLIN	267
II. Ribonucleic Acid Virus Replication. LUCILLE SHAPIRO AND J. T. AUGUST	279
III. Replication of Mengovirus Ribonucleic Acid. PETER G. W. PLAGEMANN AND H. EARLE SWIM	288
<i>Listeria monocytogenes</i> and Listeric Infections. MITCHELL L. GRAY AND ARDEN H. KIL- LINGER	309
Symposium on In Vitro Studies of the Immune Response	
I. Variations in the Immune Response to a Simple Determinant. LISA A. STEINER AND HERMAN N. EISEN	383
II. Significance of the Reaction of Lymphoid Cells to Homologous Tissues. RICHARD W. DUTTON	397
III. Biochemical Agents Affecting the Inductive Phase of the Secondary Antibody Response Initiated In Vitro. CHARLES T. AMBROSE	408
IV. Role of Nucleic Acids in the Anamnestic Antibody Response. ABRAM B. STAVITSKY AND JOHN P. GUSDON, JR.	418
Blood Groups, Disease, and Selection. LOUIS H. MUSCHEL	427
Mechanisms by Which Antibiotics Increase the Incidence and Severity of Candidiasis and Alter the Immunological Defenses. MILDRED S. SEELIG	442
Chemical Nature and Biological Effects of the Aflatoxins. GERALD N. WOGAN	460
Biological Effects of Aflatoxin in Cell Culture. MARVIN LEGATOR	471
Toxins Other Than Aflatoxins Produced by <i>Aspergillus flavus</i> . BENJAMIN J. WILSON	478

No. 3, SEPTEMBER

Airborne Infections—the Past and the Future. HARRY F. DOWLING	485
Mechanisms of Antibacterial Action in the Respiratory System. EDWARD H. KASS, GARETH M. GREEN, AND ELLIOT GOLDSTEIN	488
Discussion. VERNON KNIGHT	496
Airborne Disease and the Upper Respiratory Tract. DONALD F. PROCTOR	498
Measurement of Different Mechanisms for Elimination of Bacteria from the Lung. RAGNAR RYLANDER	514
Effect of Route of Inoculation on Experimental Respiratory Viral Disease in Volunteers and Evidence for Airborne Transmission. ROBERT B. COUCH, THOMAS R. CATE, R. GORDON DOUGLAS, JR., PETER J. GERONE, AND VERNON KNIGHT	517

Discussion. EDWIN D. KILBOURNE	530
Aerogenic Immunization of Man with Live Tularemia Vaccine. RICHARD B. HORNICK AND HENRY T. EIGELSBACH	532
Respiratory Antibody to <i>Francisella tularensis</i> in Man. E. L. BUESCHER AND J. A. BELLANTI	539
Antibiotic Prophylaxis and Therapy of Airborne Tularemia. WILLIAM D. SAWYER, HARRY G. DANGERFIELD, ARTHUR L. HOGGE, AND DAN CROZIER	542
Discussion. MARK H. LEPPER	548
Physical and Chemical Stresses of Aerosolization. ROBERT J. ZENTNER	551
Discussion. MYLES MAXFIELD	557
Multistage Liquid Impinger. K. R. MAY	559
Air Sampling for Respiratory Disease Agents in Army Recruits. MALCOLM S. ARTENSTEIN AND WILLIAM S. MILLER	571
Discussion. O. M. LIDWELL	573
Assessment of Experimental and Natural Viral Aerosols. PETER J. GERONE, ROBERT B. COUCH, GARRETT V. KEEFER, R. GORDON DOUGLAS, EDWARD B. DERRENBACHER, AND VERNON KNIGHT	576
Discussion. WILLIAM S. GOCHENOUR, JR.	584
Authors' Comments on the Discussion. P. J. GERONE, R. B. COUCH, R. C. DOUGLAS, AND V. KNIGHT	586
Infection of Pigeons by Airborne Venezuelan Equine Encephalitis Virus. WILLIAM S. MILLER	589
Discussion. WILLIAM S. GOCHENOUR, JR.	595
Physiological Responses of Airborne Bacteria to Shifts in Relative Humidity. M. T. HATCH AND R. L. DIMMICK	597
Discussion. WALTER R. LEIF	602
Effect of Nitrogen Dioxide on Resistance to Respiratory Infection. RICHARD EHRLICH	604
Attenuation of Aerosolized Yellow Fever Virus After Passage in Cell Culture. HENRY J. HEARN, JR., W. ADRIAN CHAPPELL, PETER DEMCHAK, AND JOSEPH W. DOMINIK	615
Discussion. K. C. WINKLER	622
Aerosol Vaccination with Tetanus Toxoid. HERBERT M. YAMASHIROYA, RICHARD EHRLICH, AND JOSEPHINE M. MAGIS	624
Discussion. H. C. BARTLEMA	633
Aerosol Infection of Monkeys with <i>Rickettsia rickettsii</i> . SAMUEL SASLAW AND HAROLD N. CARLISLE	636
Discussion. ARTHUR N. GORELICK	644
Industrial Inhalation Anthrax. PHILIP S. BRACHMAN, ARNOLD F. KAUFMANN, AND FREDERIC G. DALLDORF	646
Discussion. HAROLD N. GLASSMAN	657
Epidemiology of Airborne Staphylococcal Infection. R. E. O. WILLIAMS	660
Discussion. ALEXANDER D. LANGMUIR	672
Discussion: Viability of Hospital Staphylococci in Air. K. C. STRASTERS AND K. C. WINKLER	674
Experimental Epidemiology of Coccidioidomycosis. JOHN L. CONVERSE AND RAYMOND E. REED	678
Discussion. MICHAEL L. FURCOLOW	694
Concluding Remarks. RILEY D. HOUSEWRIGHT AND HAROLD N. GLASSMAN	696

No. 4, DECEMBER

Roles of Amino Acid Activating Enzymes in Cellular Physiology. FREDERICK C. NEIDHARDT	701
Crystalline Oxygenases of Pseudomonads. OSAMU HAYAISHI	720
Classification of <i>Desulfovibrio</i> Species, the Nonsporulating Sulfate-reducing Bacteria. JOHN R. POSTGATE AND L. LEON CAMPBELL	732
Pathogenesis of Rashes in Virus Diseases. C. A. MIMS	739
Penicillinacylase. J. M. T. HAMILTON-MILLER	769
Inorganic Polyphosphates in Biology: Structure, Metabolism, and Function. FRANKLIN M. HAROLD	772
Aflatoxin Formation by <i>Aspergillus flavus</i> . C. W. HESSELTINE, O. L. SHOTWELL, J. J. ELLIS, AND R. D. STUBBLEFIELD	795
Author Index	807
Subject Index	808

